NetLinx Control Cards and NetModules

NetLinx Control Cards can be installed in either the NXF CardFrame, NI-4000, or in NetModules. This document provides basic specifications and wiring information. For detailed information on the cards, refer to the *NetLinx CardFrame, Control Cards, and NetModules* Instruction Manual available on-line via www.amx.com.
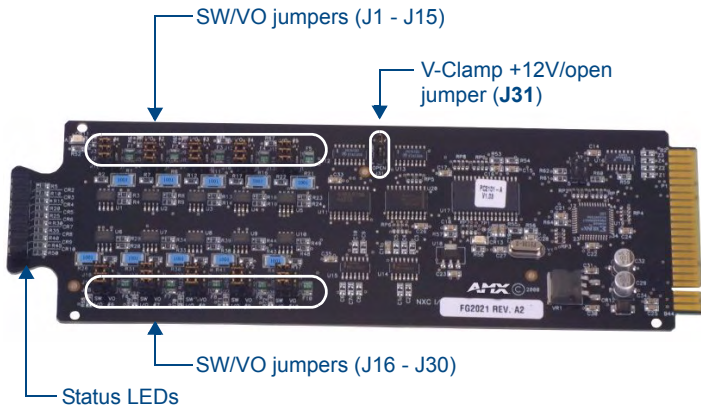

SW/VO jumpers (J1 - J15)

V-Clamp +12V/open jumper (**J31**)

SW/VO jumpers (J16 - J30)

Status LEDs

FIG. 1 NXC-I/O10 Control card

NXC-I/O10 Specifications

The NXC-I/O10 Input/Output Control Card (**FG 2021**) provides 10 Input/Output channels with LED feedback.

It acts as a logic-level input and responds to switch closures or voltage level (high/ low) changes.

The Switch (SW) and Voltage (VO) modes are set with on-board jumpers.

Note: The I/Os on this card are not dry closure; they are electronic switches that float at 5V when Off. Therefore, they should not be expected to work in situations that require true dry contact (or dry closure).

The I/Os will work with the AMX PC1, PC2, UPC20 and UPC20+.

NXC-I/O10 (FG 2021) Specifications	
Power Requirements:	180 mA @ 12 VDC
Operation:	I/O 1-10: 10 Input/Output channels
Status LEDs:	10 yellow LEDs light to show ON status activity (1 per channel).
Modes:	• **Switch**: Senses switch or relay contact closures or provides a logic-level output. • **Voltage**: Senses high- and low-voltage states.
Voltage clamp settings:	• **12 V mode** (default): Clamps any voltage connected to I/O ports 1-10 to 12 V. • **VO mode:** Use for connections that will draw more than 12 V.
Connections/wiring:	Two 10-pin 3.5 mm captive-screw terminals
DEVICE_ID:	$010b

Setting the Switch/Voltage Mode Jumpers:

The NXC-I/O10 responds to switch closures or voltage-level (high/low) changes. Compatible I/O devices include the Power Control Sensor (PCS), tape transports and limit switches. The inputs are set for SW mode (closure) or VO mode, as described below:

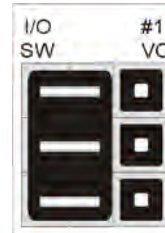### Switch (SW) Mode - jumper pins 2 and 3 (default setting)

FIG. 2 Switch (SW) Mode - jumper pins 2 and 3 (default setting)

In SW mode, the NXC-I/O10 senses switch, relay contact closures, or provides a logic-level output.

The 3-pin jumpers for each input should be set to SW before wiring inputs to the Card.

- An "On" condition is triggered by contact closures or a logic low of 0 to 1.5 VDC.
- An "Off" condition is triggered by a logic high of 2.5 to 5 VDC; set the associated I/O to switch mode.

When used for an output, each I/O port acts as a switch to ground (GND), and is rated at 180 mA @ 12 VDC.

Note: In Switch mode, the A terminals are connected to the NetLinx Controller's ground. Sources that require isolation from the Controller's ground should use voltage mode, and provide switched DC power for sensing as required.

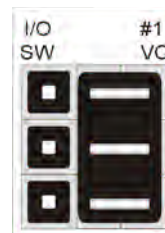### Voltage (VO) Mode setting (Jumper pins 1 and 2)

FIG. 3 Voltage (VO) Mode setting (Jumper pins 1 and 2)

In VO mode, the NXC-I/O10 senses high- and low-voltage states commonly from AC or DC signals. This mode provides opto-isolation.

The 3-pin jumpers for each input should be set to VO before wiring inputs to the Card.

- An "On" condition is triggered by DC levels from 2.5 to 28 VDC (+ or -), or AC levels from 2.5 to 24 VAC.
- An "Off" condition is triggered by DC levels from 0 to 1.5 VDC (+ or -) or AC levels from 0 to 1.5 VAC.

NXC-I/O10 Channel Assignments:

Channels 1-10 represent I/O channels 1-10.

Pinouts, Signals, and I/O Mode Functions:

Pin	Signal	SW mode Functions	VO mode functions
NXC-I/O10 Pinouts, Signals, and I/O Mode Functions			
1	Common	Signal ground	Common #1
2	I/O #1	Input #1	Input #1
3	Common	Signal ground	Common #2
4	I/O #2	Input #2	Input #2
5	Common	Signal ground	Common #3
6	I/O #3	Input #3	Input #3
7	Common	Signal ground	Common #4
8	I/O #4	Input #4	Input #4
9	Common	Signal ground	Common #5
10	I/O #5	Input #5	Input #5
11	Common	Signal ground	Common #6
12	I/O #6	Input #6	Input #6
13	Common	Signal ground	Common #7
14	I/O #7	Input #7	Input #7
15	Common	Signal ground	Common #8
16	I/O #8	Input #8	Input #8
17	Common	Signal ground	Common #9
18	I/O #9	Input #9	Input #9
19	Common	Signal ground	Common #10
20	I/O #10	Input #10	Input #10

Setting the Voltage Clamp Jumper (+12V or Open):

Set the V-Clamp jumper (J31) to +12V (default) to clamp any voltage connected to I/O ports 1-10 to 12 V. Set to OPEN for connections that will draw more than 12 V. Remember, the +12V and OPEN settings are only enabled when the I/O ports are set to SW mode.

+12V Mode (default) and Open Mode settings

+12V mode setting (default)   Open mode setting

FIG. 4 V- Clamp jumper (J31) settings

Use the default setting for all loads that require less than 12V.

When this jumper is set to Open, and an I/O port is used as an output; the I/O port is rated at 85mA @ 28VDC.

Important! When this jumper is set to Open, it is the technician's responsibility to clamp the external source relay anytime the voltage exceeds 12 V.

The source relay should always be clamped, even if the voltage exceeds 12 V.

Contact the relay manufacturer to determine the size of the clamp diode to place on the source relay.